

## *AESHNA SUBARCTICA* WALKER AND OTHER ODONATA NEW FOR MAINE<sup>1</sup>

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ABSTRACT: *Aeshna subarctica* Walker, *Somatochlora cingulata* (Selys), and *Enallagma carunculatum* Morse occur in Maine. The southernmost known breeding population of *A. subarctica* in North America is on Mount Desert Island.

DESCRIPTORS: Odonata, *Aeshna subarctica* Walker, Mount Desert Island, Maine.

Borror (1944) published an annotated list of 115 species of Odonata occurring in Maine. To this list have been added six species by Borror (1951 & 1957) and a seventh species by White (1969). In a report on the Odonata of New Hampshire (White & Morse, 1973), four additional species new for Maine are mentioned. Specific data on the collection of *Progomphus obscurus* (Rambur) and *Gomphus borealis* Needham were provided while records for *Aeshna subarctica* Walker and *Enallagma carunculatum* Morse were undocumented. Specific locality and dates for the latter two species are presented here along with the first report of *Somatochlora cingulata* (Selys) in Maine.

### *Aeshna subarctica* Walker

Over a five year period I sampled a population of *Aeshna subarctica* at Big Heath, a large sphagnum and spruce bog about 10 m above sea level near the southern tip of Mount Desert Island, Hancock County (44° 14' N lat.). During this period 15♂ and 7♀ were collected, mostly during August (1♀ 31.VII.69; 1♂, 1♀ 18.VIII.69; 7♂, 1♀ 25.VIII.70; 2♂ 26.VIII.70; 3♂, 1♀ 18.VIII.71; 2♀ 7.VIII.73; 2♂, 1♀ 21.VIII.73). Judging by the number of mature adults present, emergence at this location must begin in mid to late July. Although this species is by no means abundant, by mid August it is the predominant Anisopteran, and its flying season undoubtedly extends well into September. In 1973, emergence seemed to be late, and no mature adults were seen on 7

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August; however, many exuviae were found and two recently emerged females were collected with their exuviae. Oviposition takes place just below the water surface in the vegetation bordering the many small bog pools which have well-defined margins. Oviposition was never observed at the pools which are choked with sphagnum nor do the males patrol over these pools. On 21 August 1973, an ovipositing *A. subarctica* was captured by a green frog, *Rana clamitans melanota*. The presence of a number of these frogs in the bog pools suggests that they may prey heavily on ovipositing Odonata.

*Aeshna subarctica* is well-known from British Columbia to Newfoundland in Canada and from middle and northern Europe (Walker, 1958). It is also known from Japan (Asahina, 1972). In the United States it has been reported only from the Northern Peninsula of Michigan (Kormondy, 1958) and from New York (Beatty & Beatty, 1968). Big Heath represents the southernmost known breeding population of *Aeshna subarctica* in North America. The nearby Atlantic Ocean creates a cool damp environment typical in the summer of higher elevations and more northerly regions. This modified climate along the coast of Maine may explain in part the simultaneous occurrence at Big Heath of *A. subarctica*, *A. sitchensis* Walker (Ahrens, 1941), and *Somatochlora incurvata* Walker (White, 1969), three species of boreal Odonata known nowhere else in New England.

It is interesting to note that when I first visited Big Heath on 30 August 1968 (White, 1969), *A. subarctica* was not collected. *A. canadensis* Walker was quite common while *A. sitchensis* and *S. incurvata* were less frequent. On all subsequent visits during August, these three species have been absent or scarce while *A. subarctica* has been relatively common.

### *Somatochlora cingulata* (Selys)

A single female *Somatochlora cingulata* was collected on 8 August 1973 as it flew over the water at the southern end of Eagle Lake, Mount Desert Island, Hancock County. Since this species is known from New Hampshire (Hagen, 1875), southern New Brunswick (Walker, 1925), and Nova Scotia (Walker, 1942), its presence in Maine was expected.

*Enallagma carunculatum* Morse

Two male *Enallagma carunculatum* were collected on 27 August 1970 near the breast of the Eagle Lake Dam. They were the only ones seen and both were taken from a single rock which projected above the splash zone near shore. This species is known from nearby New Brunswick and Nova Scotia (Walker, 1942) to the east and Connecticut (Howe, 1917) and Massachusetts (Howe, 1918) to the southwest.

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